ABOUT THIS HANDBOOK

The Registration, Policies, & Information Handbook (RP&IH) is intended to be a guidance document for the technician or laboratory for the Transportation Technician Qualification Program (TTQP) and the Laboratory Qualification Program (LQP) policies and procedures. It is, however, the responsibility of the technician to remain up to date on all matters pertaining to the program. If you have questions about either program, contact the appropriate Agency person listed in this Handbook.

MISSION STATEMENT OF THE WESTERN ALLIANCE FOR QUALITY TRANSPORTATION CONSTRUCTION

Provide leadership in the pursuit of continuously improving quality in transportation construction.

Through our partnership we will:

- promote an atmosphere of trust, cooperation, and communication between government agencies and with the private sector
- assure qualified personnel, and
- respond in a unified and consistent manner to identified quality improvement needs and new technologies that impact the products that we provide

COPYRIGHT WAQTC / NAQTC "1998"

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

LIST OF ABBREVIATIONS

ADOT	Arizona Department of Transportation
AgTT	Aggregate Testing Technician
AKDOT & PF	Alaska Department of Transportation & Public Facilities
AQC	Agency Qualification Committee
AsTT	Asphalt Testing Technician
CDOT	Colorado Department of Transportation
CFLHD	Central Federal Lands Highway Division
CTT	Concrete Testing Technician
DTT	Density Testing Technician
EBTT	Embankment & Base Testing Technician
FHWA	Federal Highway Administration
HDOT	Hawaii Department of Transportation
ITD	Idaho Transportation Department
LQP	Laboratory Qualification Program
MDT	Montana Transportation Department
NDOT	Nevada Department of Transportation
NMSHTD	New Mexico State Highway and Transportation Department
ODOT	Oregon Department of Transportation
QAC	Qualification Advisory Committee
RP & IH	Registration, Policies & Information Handbook
UDOT	Utah Department of Transportation
TTQP	Transportation Technician Qualification Program
WAQTC	Western Alliance for Quality Transportation Construction
WFLHD	Western Federal Lands Highway Division
WSDOT	Washington Department of Transportation

WESTERN ALLIANCE FOR QUALITY TRANSPORTATION CONSTRUCTION (WAQTC)

INTRODUCTION

The Western Alliance for Quality Transportation Construction (WAQTC), is comprised of the Western States of Alaska, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Washington, the Western & Central Federal Lands Highway Division (WFLHD & CFLHD) of the Federal Highway Administration (FHWA), and the Federal Highway Administration. This organization is dedicated to improving the quality of the transportation products and services that we provide. To initiate quality improvement the WAQTC has implemented a **Transportation Technician Qualification Program** (TTQP) and a **Laboratory Qualification Program** (LQP) [1]. The TTQP currently consists of instruction and Qualification, in field materials testing procedures that are agreed to by WAQTC members, in a number of technical areas relating to transportation construction. This program is prescribed to meet, in part, the requirements of The Code of Federal Regulations 637, Subpart B - Quality Assurance Procedures for Construction. It is anticipated that the WAQTC will provide training and Qualification in additional disciplines in the future.

PURPOSE OF THE TTQP AND LQP

The purpose of this Qualification program is to provide improved quality in the transportation products that we provide. One means of accomplishing this is by ensuring that individuals have demonstrated abilities to engage in quality control or quality assurance activities in transportation construction work that is under the jurisdiction of contracting Agencies that are members of the WAQTC, and that laboratories that perform Agency work meet an acceptable level of performance. Unless otherwise specified in the contract documents all WAQTC members that are contracting Agencies will require that technicians who perform Agency contract work will have successfully completed the Transportation Technician Qualification Program, and laboratories that perform sampling and testing on Agency projects will have been Qualified by the Laboratory Qualification Program in their respective States.

TTQP OBJECTIVES

- To provide highly skilled, knowledgeable materials sampling and testing technicians
- To promote uniformity and consistency in testing
- To provide reciprocity for Qualified testing technicians between participating Agencies
- To create a harmonious working atmosphere between public and private employees based upon trust, open communication, and equality of Qualification

[1] *The TTQP and the LQP are affiliate extensions of the WAQTC. Whenever TTQP or LQP is used in this document, it is assumed that WAQTC precedes the reference in the text.*

DEFINITION OF QUALIFICATION (QUALIFIED)

Within the context of this guide and program the term ***Qualification*** is defined as the end product for someone who has successfully met the requirements, as defined elsewhere in this guide, in one of the technical areas in which WAQTC offers such credentials. These are solely credentials as defined by WAQTC and establish that the recipient has demonstrated a required level of knowledge and is eligible to perform work on certain transportation projects under the jurisdiction of the member contracting Agencies or others that utilize this program. This definition does not in any way suggest an affiliation with any national or other organization that provides for similar credentials, or accredits organizations to provide for similar credentials, in any like areas to those that are included in the WAQTC program.

Who must be Qualified?

All persons responsible for sampling of materials and performing and reporting on tests, in any of the technical areas in which Qualifications are offered, as defined elsewhere, on any project under the jurisdiction of one of the WAQTC contracting Agencies must be Qualified, unless otherwise designated in the contract documents for that project. Qualification may be granted only after successfully completing the requirements of this program. "Grandfathering" or "exceptions" to the TTQP, other than as noted in the Concrete Qualification, will not be granted.

Qualification Reciprocity

Technicians must successfully complete all requirements of a Qualification area to be considered Qualified by the TTQP in that area. A person completing these requirements, and holding a valid Qualification, will then be considered Qualified to perform those specific sampling and testing functions, only, falling under that Qualification in any participating Agency of the WAQTC. Although the technician is considered Qualified in that area by all Agencies for the defined test methods, there may be additional Agency specific tests and contract administration or quality assurance procedures, not specifically covered in the TTQP Qualification, that the technician will be required by that Agency to show proficiency in. The technician should be aware that, non-WAQTC Agencies may or may not accept any of these Qualifications. Each individual should verify specific Agency requirements prior to seeking employment. Any Technician seeking UDOT/TTQP qualification must contact the representative listed on the TTTQP Registration form, UDOT may require proficiency in additional test procedures.

If an Agency does not require a technician to successfully complete the examination requirements for all test methods contained under a Qualification module, as defined in this manual, that person will not be considered Qualified under the TTQP in that module. A technician must successfully complete the additional exam requirements prior to obtaining WAQTC-wide Qualification. Any Qualification obtained in this manner will expire, on the last day of the month in which the initial exam portion was successfully completed, three (3) years after that initial exam.

Disclaimers

Qualification of an individual by the UDOT TTQP indicates only that the individual has demonstrated a certain level of competence on a written and/or performance examination in a selected field of activity. Members of the WAQTC that are also contracting Agencies may require this Qualification of individuals performing activities specified in work contracts or other activities. Each individual or organization utilizing Qualified individuals must make its own independent judgement of the overall competence of Qualified individuals. The WAQTC specifically disclaims any responsibility for the actions, or the failure to act, of individuals who have been Qualified through the TTQP.

CANDIDATES WITH DISABILITIES

Persons with disabilities and those who have special needs should notify the TTQP representative at the time of registration so that appropriate accommodations can be made.

WAQTC AND TTQP COMMITTEES AND RESPONSIBILITIES

WAQTC EXECUTIVE COMMITTEE

The Executive Committee is comprised of at least one representative of each of the member Agencies of the WAQTC. This committee is responsible for the mission, objectives, structure, and policy decisions, etc., of the WAQTC as well as all final decisions concerning the operation of the TTQP, LQP, or other such programs as may be undertaken by the WAQTC in the future. Operational guidance for this committee can be found in the WAQTC Bylaws.

QUALIFICATION ADVISORY COMMITTEE

The Qualification Advisory Committee (QAC) is a subcommittee of the WAQTC that has the principal task of overseeing the regional TTQP and the LQP. The QAC acts in an advisory capacity to the WAQTC Executive Committee and reports directly to them. The QAC reviews the program and suggests changes or updates and ensures that the program continues to meet the highest standards. Additional information is contained in the TTQP Operating Agreement.

UDOT QUALIFICATION COMMITTEE

The UDOT Qualification Committee (UQC) is a recommended Agency level committee that is responsible for oversight of the TTQP or LQP within UDOT to ensure a region wide consistency in the implementation of the program. The Chairman of the committee is a UDOT employee. The type, size, and makeup of the committee are at UDOT's discretion. Members of the UQC are knowledgeable in the administrative procedures of the TTQP. The UQC may provide comments and suggestions to the QAC, may review, compile, and provide comments obtained from the course evaluations to the QAC, may hear and act on allegations of technician misconduct, or may act upon other such matters required for the efficient operation of the program within UDOT.

AGENCY REPRESENTATIVES AND CONTACT POINTS

WAQTC Executive Committee

Michael San Angelo - AKDOT&PF	Mark Elicegui – NDOT
- ADOT	John Tenison – NMSHTD
Richard Duval - CFLHD	Jeff Gower – ODOT
Tim Aschenbrener - CDOT	Tim Biel – UDOT
Garret Okada - HDOT	Tom E. Baker- WSDOT
Jeff Miles – ITD	Howe Crockett – WFLHD
Garth Newman – ITD	Bernie Kuda- FHWA Western Resource Ctr.
Kent Barnes- MDT	

TTQP Agency Contacts

Alaska	Robert Lewis Phone: (907) 269-6214	**Nevada**	Mark Elicegui Phone: (775) 888-7460
Arizona		**New Mexico**	John Tenison Phone: (505) 827-9811
CFLHD	Richard Duval Phone: (303) 716-2188	**Oregon**	Sean Parker Phone: (541) 686-7976
Colorado	Alan Hotchkiss Phone: (303) 512-4043	**Utah**	Troy Peterson Phone: (801) 965-3814
Hawaii	Garret Okada Phone: (808) 832-3553	**Washington**	Tom E. Baker Phone: (360) 709-5401
Idaho	Garth Newman Phone: (208) 334-8039	**WFLHD**	Brad Neitzke & Howe Crockett Phone: (360) 696-7725 or 7750
Montana	Jeffery Rayman Phone: (406) 444-5784		

WAQTC Web Site: www.WAQTC.org

Current course or qualification information, Qualified Technician and Testing Laboratory Registries, updates, and other useful information can be accessed at this address or by contacting the respective Agencies at the listed numbers.

FIELD MATERIALS TESTING QUALIFICATIONS

Aggregate Testing Technician (AgTT)
Asphalt Testing Technician (AsTT)
Concrete Testing Technician (CTT)
Density Testing Technician (DTT)*
Embankment and Base Testing Technician (EBTT)*
UDOT Sampling and Density Testing Technician (SDTT)
UDOT Laboratory Testing Technician (LbTT)
UDOT Superpave Mix Design and Analysis (SMDTT)
UDOT Strength Testing Technician (STT)

QUALIFICATION PROCESS

A technician may become Qualified by either of the following two methods:

Method I

- Meet any applicable prerequisites for obtaining the Qualification.
- Forward the registration form, Rights and Responsibilities Agreement, documentation of applicable prerequisites, and any applicable fee to the appropriate Agency (according to that Agency's specific guidance) to secure a position in an upcoming course and examination.
- Attend the appropriate Qualification course in its entirety.
- Successfully pass the written and performance examinations.

Method II

If a person is confident of their knowledge and experience in a Qualification subject area he/she may become Qualified in that area, without attending a Qualification course, upon successfully completing the written and performance examination requirements as defined under each Qualification section. This alternate method of obtaining Qualification is subject to the limitations set forth elsewhere in this document. The Qualification process is:

- Meet applicable prerequisites for obtaining the Qualification.
- Forward the registration form, Rights and Responsibilities Agreement, documentation of applicable prerequisites, and any applicable fee to the appropriate Agency to secure a position in an upcoming examination.
- Successfully pass the written and performance examinations.

*UDOT has combined these into one training session.

TTQP AGGREGATE QUALIFICATION PROCESS

FOR MATERIALS TESTING TECHNICIANS

Aggregate Qualification is designed for those individuals responsible for field sampling and testing of aggregate for bases, bituminous mixes, or Portland cement concrete. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Aggregate:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Aggregate: None

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR AGGREGATE QUALIFICATION

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 2	Sampling of Aggregates	C	W, P*
T 248	Reducing Samples of Aggregate to Testing Size	C	W, P
T 27	Sieve Analysis of Fine and Coarse Aggregate	C	W, P
T 11	Materials Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing	C	W, P
T 255	Total Moisture Content of Aggregate by Drying	C	W, P
T 176	Plastic Fines in Graded Aggregates and Soils By Use of the Sand Equivalent Test	C	W, P
TP 61	Determining the Percentage of Fracture in Coarse Aggregate	C	W, P
T 304†	Uncompacted Void Content of Fine Aggregate	C	W, P
D 4791†	Flat and Elongated Particles in Coarse Aggregate	C	W, P
T 84†	Specific Gravity of Fine Aggregate	C	W, P
T 85†	Specific Gravity of Coarse Aggregate	C	W, P

* The Examinee may either be asked to physically sample materials or may only be asked to explain the sampling process during this portion of the performance examination.

† UDOT additional qualification, available as a UDOT Rider at a pro-rated fee.

TTQP ASPHALT QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS

Asphalt Qualification is designed for those individuals responsible for field sampling and testing of Asphalt. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Asphalt:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Asphalt:

- Must hold an Approved Certification in Radiation Safety due to the operation of devices containing radioactive material.
  (A copy must be included with registration submittal.)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR ASPHALT QUALIFICATION

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 168	Sampling Bituminous Paving Mixtures	C	W, P*
WAQTC TM-5	Reducing Samples of Hot Mix Asphalt to Testing Size	C	W, P
T 40	Sampling Bituminous Materials (methods 8 through 14)	C	W, P*
T-308	Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method	C	W, P
T 30	Mechanical Analysis of Extracted Aggregate	C	W, P
T 209	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures	C	W, P
T 166/275	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens/Paraffin-Coated Specimens **(This is a combined field operating procedure)**	C	W, P
WAQTC TM 6	Determining Moisture Content of Bituminous Mixes	C	W, P
WAQTC TM-8	In-Place Density of Bituminous Mixes Using the Nuclear Moisture-Density Gauge	C	W,P
T312†	Preparing and Determining the Density of HMA Specimens by means of the Gyratory Compactor	C	W.P

* The Examinee may either be asked to physically sample materials or may only be asked to explain the sampling process during this portion of the performance examination.

† UDOT additional qualification, available as a UDOT Rider at a pro-rated fee.

CONCRETE QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS

Concrete Qualification is designed for those individuals responsible for field sampling and testing of Portland cement concrete. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Concrete:

- Meet the prerequisites (see below)
- Pass the written and performance examinations **OR**
- Hold a valid ACI Certification in "Concrete Field Testing Technician Grade 1"
  (Submit a copy of valid ACI Certification and Signed TTQP Rights and Responsibilities Agreement to obtain TTQP Certification)

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Concrete: None

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

Valid TTQP Certificate in Concrete is required.

TEST METHODS FOR CONCRETE QUALIFICATION

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
WAQTC TM 2	Sampling Freshly Mixed Concrete	C	W, P*
T 309	Temperature of Freshly Mixed Portland Cement Concrete	C	W, P
T 119	Slump of Hydraulic Cement Concrete	C	W, P
T 152	Air Content of Freshly Mixed Concrete by the Pressure Method	C	W, P
T 121	Mass per Cubic Meter (Cubic Foot), Yield, and Air Content (Gravimetric) of Concrete	C	W, P
T 23	Making and Curing Concrete Test Specimens in the Field	C	W, P

*The Examinee may either be asked to physically sample materials or may only be asked to explain the sampling process during this portion of the performance examination.

TTQP EMBANKMENT AND BASE QUALIFICATION PROCESS FOR MATERIALS TESTING TECHNICIANS

UDOT Combined Test Method: Embankment, Base and In-place Density

Embankment and Base Qualification is designed for those individuals responsible for field sampling and testing of soils and soil aggregate mixtures. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Embankment and Base:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Embankment and Base:

- Must hold an Approved Certification in Radiation Safety due to the operation of devices containing radioactive material.

(A copy must be included with registration submittal.)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR EMBANKMENT AND BASE QUALIFICATION

UDOT Combined Test Method: Embankment, Base and In-place Density

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 99	Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop	C	W, P*
T 180	Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop	C	W, P*
T 272	Family of Curves-One Point Method	C	W, P
T 224	Correction for Coarse Particles in the Soil Compaction Test	C	W, P†
T 217	Determination of Moisture in Soils by Means of Calcium Chloride Gas Pressure Moisture Tester	C	W, P†
T 255/265	Total Moisture Content of Aggregate by Drying/Laboratory Determination of Moisture Content of Soils **(This is a combined field operating procedure)**	C	W,P
T 85	Specific Gravity and Absorption of Coarse Aggregate	C	W, P
T 89	Determining the Liquid Limit of Soils	C	W, P†
T 90	Determining the Plastic Limit and Plasticity Index of Soils	C	W, P†
T-310	In-Place Density and Moisture Content of Soil and Soil Aggregate by Nuclear Methods	C	W,P

Note: Course work will also include field use of an Alaska T-12, Washington 606, Idaho T-74, or Western Federal Lands Highway Division HRBB-319 (Humphrys) curve.

* Participating WAQTC members will require a written and performance examination on one of these two methods, which may require that a technician seeking employment in another Agency may have to show proficiency in a different method also.

† UDOT additional requirements

TTQP IN-PLACE DENSITY QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS
UDOT Combined Test Method: Embankment, Base and In-place Density

In-Place Density Qualification is designed for those individuals responsible for field testing for In-Place Density on soils, soil aggregate mixtures, aggregate products, and bituminous mixes. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in In-Place Density:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in In-Place Density:

- Must hold an Approved Certification in Radiation Safety due to the operation of devices containing radioactive material.
  (A copy must be included with registration submittal.)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

- If an applicant holds a current WAQTC Qualification in Asphalt and / or Embankment and Base they may not need this qualification.

TEST METHODS FOR IN-PLACE DENSITY QUALIFICATION
UDOT Combined Test Method: Embankment, Base and In-place Density

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 99	Moisture-Density Relations Using a 2.5 -kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop	C	
T 180	Moisture-Density Relations Using a 4.5 4-kg (10-lb) Rammer and a 457-mm (18-in.) Drop	C	
T 272	Family of Curves - One Point Method	C	W, P
T 224	Correction for Coarse Particles in the Soil Compaction Test	C	W
T 217	Determination of Moisture in Soils by Means of Calcium Chloride Gas Pressure Moisture Tester	C	W, P*
T 255/265	Total Moisture Content of Aggregate by Drying /Laboratory Determination of Moisture Content of Soils **(This is a combined field operating procedure)**	C,	W, P*
T 85	Specific Gravity and Absorption of Coarse Aggregate	C	
T 89	Determining the Liquid Limit of Soils	C	
T 90	Determining the Plastic Limit and Plasticity Index of Soils	C	
T-310	In-Place Density and Moisture Content of Soil and Soil Aggregate by Nuclear Methods	C	W, P
T 209	Maximum Specific Gravity of Bituminous Paving Mixtures	C	
T 166/275	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens/Paraffin-Coated Specimens	C	
WAQTC TM 8	In-Place Density of Bituminous Mixes Using the Nuclear Moisture-Density Gauge	C	W, P

Note: Course work will also include field use of an Alaska T-12, Washington 606, Idaho T-74, or Western Federal Lands Highway Division HRBB-319 (Humphrys) curve.

* Agencies may choose to conduct a performance examination on either T 217 or T 255/265.

UDOT
TTQP SUPERPAVE MIX DESIGN AND ANALYSIS QUALIFICATION PROCESS FOR MATERIALS TESTING TECHNICIANS

Superpave Mix Design and Analysis Qualification is designed for those individuals responsible for testing and determining acceptability of Superpave Mix Designs. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Superpave Mix Design and Analysis:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for Qualification in Superpave Mix Design and Analysis:

- Current qualification in:
  Aggregate Testing
  Asphalt Testing
  (Qualification for each area must be submitted with the registration forms)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR SUPERPAVE MIX DESIGN AND ANALYSIS QUALIFICATION

AASHTO/ ASTM	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
MP 2	Superpave Volumetric Mix Design	C	W, P
TP 61	Determining Percentage of Fracture in Coarse Aggregate	C	
T 304	Uncompacted Void Content of Fine Aggregate	C	
T 176	Plastic Fines in Graded Aggregates and Soils by the Use of the Sand Equivalency	C	
D 4791	Flat and Elongated Particles in Coarse Aggregate	C	
PP 28	Superpave Volumetric Mix Design	C	W, P
R 30	Laboratory Mixing and Mixture Conditioning of HMA	C	W, P
T 312	Preparing and Determining the Density of HMA Specimens by Means of the Gyratory Compactor	C	W
T 283	Resistance of Compacted Bituminous Mixtures to Moisture Induced Damage	C	W, P

UDOT
TTQP LABORATORY TESTING TECHNICIAN QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS

Laboratory Testing Technician Qualification is designed for those individuals responsible for testing aggregate and concrete specimens, determining quality and acceptability. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Laboratory Test Technician:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Laboratory Test Technician:

- Current qualification in:
  Aggregate Testing
  Embankment, Base and In-Place Density Testing
  (Qualification for each area must be submitted with the registration forms)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR LABORATORY TEST TECHNICIANS QUALIFICATION

AASHTO/ ASTM	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 21	Organic Impurities in Fine Aggregate for Concrete	C	W, P
T 104	Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate	C	W, P
T 96/C 535	Resistance of Degradation of Small-size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	C	W, P
T 112	Clay Lumps and Friable Particles	C	W, P
T 193	California Bearing Ratio	C	W
T 288	Determining Minimum Laboratory Soil Resistivity	C,	W, P
T 289	Determining pH of Soil for Use in Corrosion Testing	C	W, P
T 19	Bulk Density ("Unit Weight") and voids in Aggregate	C	W, P
T 113	Lightweight Pieces in Aggregate	C	W, P

UDOT
TTQP STRENGTH TEST TECHNICIAN QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS

Strength Testing Technician Qualification is designed for those individuals responsible for testing strength of concrete specimens, determining quality and acceptability. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel.

The Process for Qualifying in Strength Test Technician:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for Qualification in Strength Test Technician:

- Current qualification in:

  Concrete Testing
  (Qualification for each area must be submitted with the registration forms)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR STRENGTH TEST TECHNICIANS QUALIFICATION

AASHTO/ ASTM	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
	Mandatory Background Information	C	W
T 23	Making and Curing Concrete Test Specimens in the Field	C	W, P
T 22	Compressive Strength of Cylindrical Concrete Specimens	C	W, P
T 97	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)	C	W, P
T 231	Capping Cylindrical Concrete Specimens	C	W, P
C 1231	Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders	C	W, P

UDOT
TTQP SAMPLING AND DENSITY QUALIFICATION PROCESS
FOR MATERIALS TESTING TECHNICIANS

Sampling and Density Qualification is designed for those individuals responsible for performing In-Place Density Test on soils, soil-aggregate mixtures, aggregate products and bituminous mixes and obtaining proper samples of such for further testing. Participants include contractor and supplier quality control personnel, consulting engineering and materials testing firm personnel, quality assurance technicians, and public agency personnel. Sampling and Density Qualification is not required for personnel having Aggregate, Asphalt and Embankment and Base/In-place Density Qualifications.

The Process for Qualifying in Sampling and Density:

- Meet the prerequisites. (see below)
- Pass the written and performance examinations.

Course Length: approximately 2 days
Course Size: 10 recommended

Prerequisites for being Qualified in Laboratory Test Technician:

- Must hold an Approved Certification in Radiation Safety due to operation of devices containing radioactive material.
  (A copy must be included with registration submittal)

Recommendation:

- The participant should exhibit basic mathematics and reading comprehension skills.

TEST METHODS FOR SAMPLING AND DENSITY QUALIFICATION

AASHTO/ WAQTC	PROCEDURE	TRAINING Classroom (C) Laboratory (L)	EXAM Written (W) Performance (P)
T 2	Sampling of Aggregates	C	W, P*
T 168	Sampling Bituminous Paving Mixtures	C	W, P*
T 40	Sampling Bituminous Materials	C	W, P*
T 310	In-Place Density of Embankment and Base Using the Nuclear Moisture-Density Gauge	C	W, P
WAQTC TM 8	In-Place Density of Bituminous Mixtures using the Nuclear Moisture-Content Gauge	C	W, P

*The Examinee may either be asked to physically sample materials or may only be asked to explain the sampling process during this portion of the performance examination.

EXAMINATION ADMINISTRATION

The following criteria are common to the examination for each module.

- Written Examination
    a. Closed Book
    b. Five (5) questions minimum per test method including multiple choice, true or false, and calculations. Exams will be either Metric or English depending on agency standards.
    c. Written exam must be completed within the time limit designated by the Agency.
- Performance Examination
    a. Each participant will demonstrate proficiency in the designated test methods.
    b. Open procedure, but the Examinee **will not** have access to the performance exam checklist.
    c. Each procedure must be performed within the time limit set by the Agency for that test method.
    d. The Examinee may be asked to explain various steps to the procedure to reduce the full test time. All test method time limits set by the Agency will take into account the reduction of time due to accelerated steps.
    e. Each test method will have a performance exam checklist with a yes or no checked by the Examiner.
- Passing Score - Written/Performance

    Written:
    a. Initial exam (first attempt): .An overall score of 70% with a minimum of 60% on any one test method.
    b) Re-exam (second attempt): An initial exam overall score below 70% will require a re-exam on all test methods.
    An initial exam score above 70% overall, but below 60% on one or more test methods, will require a re-exam on only those test methods. In the case of one test method comprising the re-exam, the examinee must receive a score of 70%. In the case of more than one test method comprising the re-exam, the examinee must receive an overall score of 70% with a minimum of 60% on any one test method.

    Performance:

    All performance checklists must have 100% yes blanks checked and each test method must be performed within the designated time limit.
- Re-examination Policy - Written/Performance
    a. Anyone failing the written examination on the first attempt is required to retake the written examination at the scheduling convenience of the Agency, and pass, if Qualification by the TTQP is still desired.

b. Anyone failing a test method on the performance exam may repeat that trial during the day of the performance exam. Repeat trials will be allowed in not more than 50% of the total test methods in that performance exam. Failure of any one of the prescribed test methods after two trials will constitute failure of the whole performance exam. Anyone failing the performance examination on the first attempt is required to retake the performance examination at the scheduling convenience of the Agency, and pass, if Qualification by the TTQP is still desired.

c. Failure of either examination the second time will require attendance of the course for that Qualification and passing a full examination if Qualification is still desired.

Additional examination guidance can be found in the Program Management section of the Administrative Manual or the Information, Policies, & Procedures section of the RP&IH Handbook.

Blank Page

WAQTC TRANSPORTATION TECHNICIAN QUALIFICATION PROGRAM (TTQP)
REGISTRATION FORM

Name:	Employer:
Address:	Employer's Address:
Home Phone #:	Employer's Phone #:
	Current TTQP Qualification #:

Check one: Original Qualification ☐ Renewal of Qualification ☐

Which mailing address should we use? Home ☐ Employer ☐

Desired Qualifications (select only one Qualification area per registration form)

			Cost		Cost
☐	Aggregate Testing Technician (AgTT)	Course & Exam ☐	$300	Exam Only ☐	$150
☐	Asphalt Testing Technician (AsTT)	Course & Exam ☐	$300	Exam Only ☐	$150
☐	Concrete Testing Technician (CTT)	Course & Exam ☐	$300	Exam Only ☐	$150
☐	Embankment, Base & Density Testing Technician (EBTT) $150	☐	Course & Exam $300	☐	Exam Only
☐	Laboratory Testing Technician (LbTT)	Course & Exam ☐	$300	Exam Only ☐	$150
☐	Sampling and Density Testing Technician (SDTT)	Course & Exam ☐	$200	Exam Only ☐	$150
☐	Superpave Mix Design and Analysis (SMD)	Course & Exam ☐	$300	Exam Only ☐	$150
☐	Strength Testing Technician (STT)	Course & Exan ☐	$300	Exam Only ☐	$150

Choose a course date and location or an examination (only) date and location

First Choice		Second Choice	
Date	**Location**	**Date**	**Location**

Disabilities or special needs? _____

Technicians seeking Qualification in one of the designated specialties should consult the TTQP Registration, Policies & Information Handbook (RP&IH) for Qualification criteria, prerequisites, other policies and requirements, and general information, or call the number listed below. **Checks should be made to: Utah Department of Transportation. The submittal should be mailed to the address shown below and must be received there at least two (2) weeks before the start of the course or exam. The technician's full name, Qualification number, and Qualification information will be listed on the WAQTC Web page's Registry of Qualified Technicians upon successful completion of the Qualification requirements.**

Mail to:
Utah Department of Transportation
Attn: Desna Bergold
Box 148290
Salt Lake City UT 84414-8220

Call:
Desna Bergold (801) 964-4512
FAX: (801) 965-4101
Email: dbergold@utah.gov

Passed Qualification ☐ Failed Qualification ☐

WAQTC QUALIFICATION NUMBER

Signature, UQC Chair or Designee

TRANSPORTATION TECHNICIAN QUALIFICATION PROGRAM
RIGHTS AND RESPONSIBILITIES AGREEMENT

This document affirms that _____ , hereinafter the Technician, desires to be Qualified by the Transportation Technician Qualification Program (TTQP) as a _____

Qualification carries inherent rights and responsibilities. These rights include being exclusively sanctioned along with others so Qualified by TTQP to perform sampling, testing, and reporting of test results for quality control and quality assurance programs. These responsibilities include performing and reporting tests with the accuracy and precision expected of the Technician in accordance with the required test procedures. By signing this document the Technician agrees to abide by all of the terms of the TTQP included in the Registration, Policies, & Information Handbook and as set forth by the contracting Agency.

Findings of negligence or abuse of these rights and responsibilities will be penalized upon recommendation by the UDOT Qualification Committee (UQC) and any appeal to the UQC Chair. Penalties, as prescribed herein, may be assessed for Technician abuse or negligence. Negligence is defined as unintentional deviations from approved procedures which may or may not cause erroneous results. The first finding of negligence will result in a letter of reprimand being sent to both the employee and the employer, the second will result in a thirty (30) day suspension of Qualification, the third in a one hundred eighty (180) day suspension of Qualification, and the fourth in permanent suspension of Qualification. Abuse is defined as intentional deviations from approved procedures. The first finding of abuse will result in a one (1) year suspension to permanent revocation of an individual's Qualification. Any subsequent finding of abuse will result in permanent revocation of Qualification. Revocation or suspension of one Qualification will be considered a revocation or suspension of all Qualifications held by the Technician. Permanent revocation of Qualification will result in that person being ineligible for any TTQP Qualification. The penalties are guidelines and the UQC may impose harsher penalties if warranted for findings of abuse or negligence.

The Technician should also be aware that both State and Federal laws may govern construction projects, including Title 18, United States Code, Section 1020, that in brief states that anyone making falsifications on Federal-aid projects,

"Shall be fined not more than $10,000 or imprisoned not more than five years, or both."

I,_____ , have read, understand, and agree to abide by the rights,
(print name)

responsibilities, and penalties associated with receipt of this Qualification.

_____
Signature

_____
Date

INFORMATION, POLICIES, & PROCEDURES

QUALIFICATION REGISTRATION

To be eligible for Qualification each technician must register at least (2) two weeks prior to the beginning of the Qualification course or examination. UDOT TTQP training schedule and registration can be found at www.udot.utah.gov/mtl/

OUT-OF-STATE APPLICANTS

The requirements for persons from non-WAQTC member States or Agencies wishing to obtain Qualifications under the TTQP are the same as for those from member States or Agencies. Those holding valid Qualifications from other programs and showing proper documentation, may be extended Qualification by the TTQP if the Qualification is judged to offer equal credentials as the TTQP and is approved by the Executive Committee.

FEES FOR QUALIFICATION

Each Agency may assess applicant fees as deemed necessary. The applicant should verify the fees(s), if any, with the Agency prior to registration.

RIGHTS AND RESPONSIBILITIES AGREEMENT

All Qualifications will be contingent upon the technician signing a Rights and Responsibilities Agreement. This agreement informs the technicians of the rights and responsibilities along with the consequences of the violation of these responsibilities. The technician will submit a signed agreement with their registration for Qualification. A copy of the agreement is included in this Handbook.

CANCELLATION POLICY

Courses or Examinations may be cancelled for reasons not specifically stated herein. Every effort will be made to notify the applicants well in advance if a cancellation is necessary. If a course or examination is cancelled, the applicant may either request refund of any fee, or ask that he/she be enrolled in the next available course or examination.

REFUND POLICY

1. The registration form, Rights and Responsibilities Agreement, fee, and any other required documentation must be received at least two (2) weeks prior to the start of the course.

2. Cancellation by the candidate within seven (7) days (without the class position being filled) will result in 50% of the fees being refunded. If the class position can be filled, 85% of the fees will be refunded (15% will be retained for administrative costs).
3. Unforeseen emergency during the course or Qualification proceedings will result in no refund of

fees but the candidate will be allowed to retake the course or Qualification examinations, whichever is applicable, at a later date with an additional fee of 15% of the course cost.

4. No refund of fees will be made for failure to successfully complete the examination portions of the Qualification proceedings.

EXAMINATION

Technicians seeking a Qualification will be required to pass both written and performance examinations which are designed to demonstrate both a knowledge and understanding of the test procedures. Written exam Administrators and performance exam Examiners will thoroughly explain what the exams will entail and the examination rules prior to the beginning of the exams. Failure of either the written or performance portions of the Qualification will require re-examination and a passing grade in the exam(s) failed, if Qualification is still desired, subject to the criteria described herein.

Written Examination

The written examination will consist of multiple choice, some of which will require calculations, or true/false questions. All questions require detailed knowledge of the test method procedures and basic reading comprehension. The examination is closed book, which requires that no technical materials or notes are allowed in the room during the examination. Calculations may be required for some questions; therefore, a battery-powered pocket calculator may be brought to the examination. Calculators may not be shared. The individual must bring No. 2 pencils and erasers and clean scratch paper if desired. All written exams will be administered within a specified time frame. At the end of the designated period all exams and used scratch paper will be collected by the exam Administrator. Exam scores will remain confidential. A participant will successfully pass the written examination by meeting the following criteria:

a. A minimum score of 70% on the entire written exam for that Qualification.

b. A minimum score of 60% on each segment (test method) of the written examination.

Performance Examination

The performance examination may be performed with the procedure open for reference; however, referral to the exam check list, or any notes or other material reflecting the content of the check list, will not be permitted during the exam. Each procedure will be completed within the time limit designated by the Agency for that method. The participant is required to successfully perform all steps of the designated test procedures for the particular Qualification area, with the exception that the examinee may be asked to explain various steps to a procedure in order to reduce the total test time. All test method time limits set by the Agency will take into account the reduction of time due to accelerated steps. An individual may be required to verbally describe the procedures for sampling of a material, such as Sampling Freshly Mixed Concrete, if performance of the method is not practical or feasible.

Judgment will be based on the ability to correctly perform all required procedures for each of the methods based on criteria shown on the performance examination check lists (which are included in each Qualification subject area Participant Workbook at the end of each section). Omission of one or more of the prescribed procedures will constitute failure of that test method. The inability to complete the test method within the designated time limit will constitute failure of the method. The examinee may perform one repeat trial of a failed method, at the Examiner's convenience, on the day of the exam; however, repeat trials will be allowed in not more than 50% of the total test methods in that performance exam[2]. Failure of any one of the prescribed test methods after two trials will constitute failure of the performance examination portion of the Qualification process. Scoring of the exam will be on a pass/fail basis.

The performance examination will occur in the direct presence of the Examiner. All steps of the method must be performed, except that certain steps may be accelerated when properly explained to the Examiner. The Examiner may not respond to questions or assist in the performance of the method. Immediately after completion of the method, the Examiner will tell the individual if he/she has passed or failed that trial. If a failure has occurred, the Examiner will denote which part of the method was performed or described incorrectly. The Examiner will not stop a trial when an error has occurred, nor will he/she in any way signify approval or disapproval. Any disputes will be referred immediately to and reconciled by the course or exam Administrator.

Re-examination

Re-examination for both the written and performance exams will be conducted according to the same criteria as the original examinations. The one exception is on the written examination; see pages 24 and 25 for detailed information. A participant may be eligible for re-examination subject to other restrictions outlined elsewhere in this manual. The applicant may either make individual arrangements with the Agency for re-examination or apply to take a scheduled exam, depending upon Agency preference or policy. Failure of either exam a second time will require attendance of the course for that Qualification and passing full examination if Qualification is still desired by the participant.

PARTICIPANT NOTIFICATION

Every effort will be made to notify, in writing, each participant in the Qualification requirements, whether successful or unsuccessful, of the status of their results by the Agency conducting the Qualification proceedings within a reasonable amount of time. Should the participant not receive notification within two (2) weeks, he/she should contact the appropriate Agency. If the participant is unsuccessful in completing the Qualification requirements, the appropriate instructions will be included, if applicable.

QUALIFIED TECHNICIAN REGISTRY

The Agency conducting the Qualification exams will log each participant that has successfully

[2] The examinee may request that a different Examiner administer a repeat trial of a failed test method.

completed the Qualification requirements on the **Qualified Technician Registry** for that Agency which is linked to the WAQTC Web site. The information to be logged in the appropriate field is:

- A unique Qualification number assigned from the following Agency allotments

Alaska	00,001 - 19,999	Montana	120,000 - 139,999
Idaho	20,000 - 39,999	Nevada	140,000 - 159,999
Oregon	40,000 - 59,999	Utah	160,000 - 179,999
Washington	60,000 - 79,999	Colorado	180,000 - 199,999
Arizona	80,000 - 99,999	Hawaii	200,000 – 219,000
	100,000 - 119,999	New Mexico	220,000 – 239,000

  Note: The number assigned with the first Qualification will remain with that employee no matter if additional Qualifications may be attained through other WAQTC Agencies. Should a technician obtain a Qualification in a state other than the one designated by the assigned Qualification number, the Agency issuing the additional Qualification will notify the Agency where the Qualification number originated so that the Qualification may be properly registered. The participating technician should verify with the Agency that any such Qualifications are properly logged.

- The successful participant's full name

- The area in which the Qualification is received designated by:

Aggregate	AgTT
Asphalt	AsTT
Concrete	CTT
In-Place Density	DTT
Embankment & Base	EBTT
UDOT Sampling and Density	SDTT
UDOT Laboratory	LbTT
UDOT Superpave	SMD
UDOT Strength Testing	STT

- The month and year of the Qualification expiration - (the last day of the month in which the initial exam portion of the Qualification was successfully completed, in the third (3) year after that initial exam)

COURSE EVALUATIONS

Course evaluations will be obtained for each Qualification course administered by member

Agencies. It is extremely important that each participant provide thoughtful comment and constructive suggestions to assist us in our continuing efforts to improve our course content and presentations. An evaluation form is included in the Participant Workbook for each course.

REGISTRATION, POLICIES, & INFORMATION HANDBOOK

As changes to the program occur, or other Registration, Policies, and Information handbook updates are required, the new information will be posted on the WAQTC Web site. The information may also be obtained by calling the TTQP or LQP representative in the appropriate Agency. Even though every effort will be made to make current information available to everyone, it is the responsibility of the Qualification holder, or prospective applicant, to keep current on new issues and to provide the appropriate representative with address and employer changes.

WAQTC WEB SITE (WWW.WAQTC.ORG)

The WAQTC Web site is intended to provide useful information both to the member Agencies, other Agencies, and the general public about the TTQP, the LQP, and other programs of the WAQTC. Suggestions for improvement to the Web site, or other facets of the program, may be provided to a member of the WAQTC or by the home page E-mail link.

QUALIFICATION RENEWAL POLICY

Qualification renewal is required to be completed by the last day of the month in which the initial exam portion of the Qualification was successfully completed, in the third (3) year after that initial exam. The technician is responsible for making arrangements for obtaining his/her applicable Qualification renewal and must do so before the expiration date of the Qualification. The procedures for Qualification renewal are the same as for the initial Qualification. Interim or Qualification refresher courses may be offered; however, it is also the responsibility of the technician to stay abreast of changes to procedures and test methods.

Renewal of Qualification may be obtained in the following manner:

A technician may obtain renewal of Qualification by passing the written and performance exam, as applicable, required for that particular Qualification. The technician may be responsible for scheduling his/her own examination and/or course; therefore, he/she should consult the specific Agency to determine current procedure. *Re-examination policies*, for those failing to pass a Qualification renewal on the first attempt, will be the same as for the original Qualifications.

REVOCATION, SUSPENSION OR DENIAL OF QUALIFICATION

Qualifications awarded by the TTQP may be revoked at any time by the UDOT Qualification Committee (UQC) for just cause. Proposed revocations or denial will be sent to the individual in writing along with the individual's right to appeal the proposed revocation or denial. A proposed revocation is effective upon receipt by the technician and will be affirmed, modified, or vacated following any appeal. The reasons that technicians will be subject to revocation, suspension or

denial of their Qualifications are *negligence* or *abuse* of their responsibilities. Agencies may Disqualify technicians for other reasons of just cause which may or may not be specifically defined herein following the due process procedures outlined herein.

Negligence is defined as unintentional deviations from approved procedures which may or may not cause erroneous results or the TTQP Program. The following penalties are guidelines for findings of *negligence*: The first finding of *negligence* will result in a letter of reprimand being sent to both the employee and the employer, the second will result in a thirty (30) day suspension of Qualification, third in a one hundred eighty (180) day suspension of Qualification, and the fourth in permanent revocation of the Qualification. The UQC may deviate from these penalty guidelines if warranted.

Abuse is defined as intentional deviations from approved procedures or the TTQP Program. The following penalties are guidelines for findings of *abuse*: The first finding of *abuse* will result in a one (1) year suspension to permanent revocation of an individual's Qualification. Any subsequent finding of *abuse* will result in that person being ineligible for any future type of TTQP Qualification. The UQC may deviate from these penalty guidelines if warranted.

Revocations or suspensions for *abuse* or *negligence* in one Qualification area will be considered revocations or suspensions in all Qualifications held by the technician. Such revocations or suspensions will be in effect in all member Agencies of the WAQTC.

If a technician fails to successfully complete a Qualification renewal in a specialty area, that technician will be considered Disqualified in that area, only, until the requirements for Qualification renewal have been successfully met, subject to the limitations set forth in this document.

Allegations of *negligence* or *abuse* will be made to the UQC in writing. The allegations will contain the name, address, and signature of the individual(s) making the allegation. The allegations will be investigated by the UQC. The accused and the individual(s) making the allegation will be given the opportunity to appear before the UQC. All involved parties will be notified in writing of the findings by the UQC. Any warranted penalties will be imposed in accordance with guidance contained herein. Decisions regarding allegations of *negligence* or *abuse* may be appealed in writing to the UQC Chair who will independently consider such written appeals but may rely on the advice and counsel of the UQC and take such action as he/she considers appropriate.

LABORATORY QUALIFICATION PROGRAM
POLICY
(SECTION 1013 UDOT MANUAL OF INSTRUCTION)

Laboratory Qualification Program

Introduction

Laboratories performing work for UDOT must be UDOT qaulified. The UDOT system for evaluating testing laboratories specifies requirements that laboratories must satisfy to perform testing services for UDOT. The requirements for this system are listed in the succeeding paragraphs. A listing of approved independent testing laboratories and their specific areas of testing eligibility are found on the UDOT web page at http://www.dot.state.ut.us/. The Quality Assurance Section monitors and ensures each independent laboratory's compliance with the system. UDOT laboratory qualifications are valid for twelve months at which time each laboratory will be re-evaluated before their laboratory qualification is renewed.

AASHTO Accreditation Program (AAP) accreditation must be obtained for all AASHTO and ASTM test methods to be performed by the testing laboratory (including satellite labs). Qualification, through UDOT's Materials Quality Assurance Section, must also be obtained for AASHTO and ASTM test methods which are modified or referenced in the "Materials Manual of Instruction, Part 8." Testing laboratories must have access to the latest edition of UDOT's Manual of Instruction - Part 8 Materials, found on the UDOT web page. The manual must be readily available to all laboratory personnel.

AASHTO Accreditation

Federal regulations require that laboratories providing testing services utilized in the acceptance decision, performing IA activities or used in dispute resolution process must be qualified by an approved accreditation program. Consistent with FHWA regulation, UDOT requires accreditation through the AASHTO Laboratory Accreditation Program for UDOT Central, UDOT Region, consultant, contractor QC and dispute resolution laboratories.

Soil, concrete, ASTM C1077, Asphalt, D3666, Cement/Pozzolan, and all potential acceptance test methods must be accredited or UDOT qualified. Quality control testing used for acceptance will also require AASHTO Accreditation. Routine tests not used for acceptance require no accreditation. Test methods and procedures which are specific to UDOT are listed in the "Materials Manual of Instruction - Part 8."

Consultant laboratories with AASHTO accreditation that expires or is revoked during a project will be replaced with a laboratory with current accreditation. A lab receiving poor results on inspections or proficiency sample results will receive a corrective action letter requesting proof of improvement. Continued deficiencies will result in disqualification and removal from UDOT's list of approved labs.

Satellite labs are required to have a quality systems manual readily available to all laboratory personnel.

Consultant and region laboratories will make available to UDOT all AASHTO correspondence including proficiency sample results, inspection report forms, non-accreditation proficiency sample results, and Quality Systems Manuals.

When a consultant laboratory hires a subcontractor, UDOT will be notified and involved in the approval action. The subcontractor will meet the same standards and requirements as the consultant laboratory. Accredited consultant labs employing satellite labs on UDOT projects will provide proof that the satellite labs are qualified. The accredited laboratory will have documented procedures, acceptable to UDOT, for qualifying satellite laboratories. UDOT project field labs are classified as satellite labs and fall under the accreditation umbrella of the region laboratory. Consultant field labs are classified as satellite labs and fall under the accreditation umbrella of their main lab.

Laboratories falsifying test results or exhibiting unethical behavior will be disqualified and removed from UDOT's list of approved labs.

Laboratories and satellite labs failing to maintain the Quality Systems Manual and equipment calibration records will be subject to suspension of qualifications as an approved lab.

Non-AASHTO Test Methods

The Quality Assurance Section will qualify all laboratories in UDOT, ASTM, and WAQTC test methods and procedures which are specific to UDOT's materials acceptance program, yet are not covered by the AASHTO accreditation program, using the same guidelines as AASHTO's accreditation program.

Equipment Certification

The laboratory equipment inspection consists of checking conformance of all apparatus and equipment required for use on UDOT projects. This inspection and certification program is not a calibration service for non-UDOT laboratories. Equipment found unacceptable must be repaired, calibrated, or removed from service at the expense of the owner's laboratory. Laboratory facilities will be inspected for compliance with applicable standards, such as proper temperature and humidity control. Laboratory equipment qualifications will be conducted by the QAS Equipment Certification team a minimum of once every 12 months. Satellite or field labs must be inspected every 12 months or when relocated, whichever comes first.

Equipment in UDOT Labs - The QAS Equipment Certification Team will be responsible for the repair, calibration and certification of scales, compression testing equipment, and destructive testing equipment.

Equipment in Private Labs -The QAS Equipment Certification Team will be responsible for the verification of equipment calibration and certification. Any equipment found unacceptable must be immediately removed from service and be repaired, replaced or calibrated within ten working days of inspection at the expense of the owner's laboratory.

Satellite or field laboratory equipment will be calibrated and certified after every move. The Resident Engineer will be responsible for verifying that the calibration and certification has been performed before the lab is used on UDOT projects.

Annual multiple block calibrations will be required for all nuclear gauges used on all UDOT projects.

Annual air meter calibrations require calibration method AASHTO T-152.

Personnel Qualifications

AASHTO accreditation criteria and conformance with UDOT's Technician Training and Qualification Program requirements will apply for all testing technicians.

Proficiency Samples

Any laboratory seeking UDOT Qualification must participate in applicable AASHTO Materials Reference Laboratory (AMRL, CCRL) Proficiency Sample Program. UDOT may institute its own proficiency sample program for test methods and procedures that are not covered under the AASHTO program if the QAS and Region Materials Engineers identify the need for a secondary program. If the need does arise, this section will be revised to include a UDOT proficiency sample program.

Proficiency samples are carefully prepared to be as homogeneous as possible to minimize the effect of material variability in evaluating the within-test variance. Each sample is sequentially numbered and, using random numbers, a specified quantity of test samples are allocated to each participant. To permit an estimate of single-operator precision, instructions are given for a single test operator to conduct all repetitions of an individual test. However it is not required that the same person conduct all tests.

The AMRL/CCRL program generally provides each of the proficiency samples listed below distributed at six month intervals. Typical, material types:

- Soils
- Fine Aggregate
- Coarse Aggregate
- Hot Mix Asphalt
- Concrete
- Performance Graded Asphalt Binder
- Emulsified Asphalt
- Portland Cement & Pozzolan

Documentation

The Construction and Materials QAS will be responsible for maintaining documentation of all laboratories qualified under the UDOT Laboratory Qualification Program.